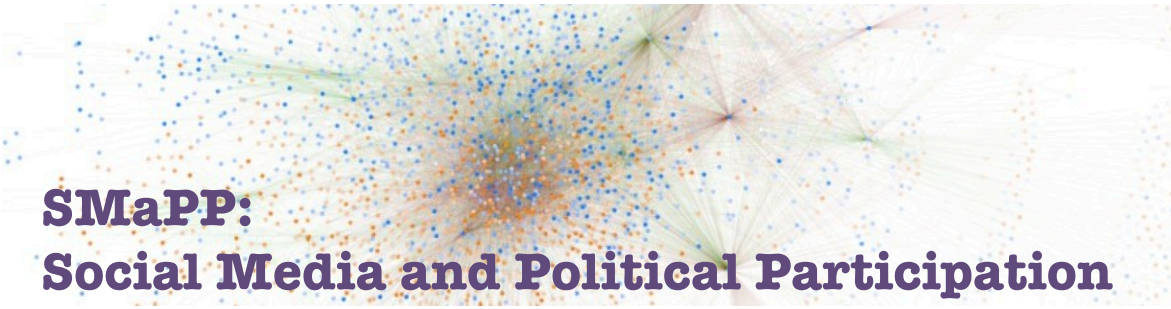
Ideological Differences in Language Use

Joanna Sterling



NYU

Why do you oppose same sex marriage?

quotes adapted from: http://www.pewresearch.org/fact-tank/2013/06/06/in-your-words-views-of-same-sex-marriage-homosexuality/

Twitter / Welcome

Twitter / Welcome

Twitter, Inc. (US) https://twitter.com/i/#!/welcome/recommendations

Google

Build your timeline.
Follow people to get their Tweets.

Start by following 5

Search for...

- ashton kutcher @aplusk — Follow
- Justin Bieber @justinbieber — Follow
- Harry Styles @Harry_Styles — Follow
- Oprah Winfrey @Oprah — Follow
- Justin Timberlake @jtimberlake — Follow
- Ariana Grande @ArianaGrande — Follow
- YouTube @YouTube — Follow
- Neymar Júnior @Njr92 — Follow
- Usher Raymond IV @UsherRaymo... — Follow
- Seth MacFarlane @SethMacFarl... — Follow
- Perez Hilton @PerezHilton — Follow

Preview

Marcia Fudge (D-OH): "@Chris_Kerr I do support immigration reform that unites families and strengthens the diversity that has moved our country forward"

Zoe Lofgren (D-CA): "America is a beacon of hope and #freedom around the world in part due to our refugee & asylum programs #immigration: http://t.co/8pUdZychIE"

Richard Hudson (R-NC): I cannot and will not support any type of immigration reform until we secure the border first. Read more here: http://t.co/SoylksipVX

Jason Smith (R-MO): "The President must prove that he will enforce immigration laws #NoAmnesty http://t.co/fkUI4oEmqo"

Mind and Language

- There are powerful situational constraints on language
- "Linguistic fingerprints"
  - Cross-situational consistency of language
  - Not *what* is being said, but *how*
  - Unintentional, spontaneous, and difficult to change
- Linguistic style and word choice is reflective of situational and dispositional factors

Pennebaker & King (1999); Pennebaker, Mehl, & Niederhoffer (2003); Weintraud (1981, 1989); Newman, Groom Stone, & Pennebaker (2006)

Political Conservatism is associated with:

- Fear and aggression (Altemeyer, 1998)
- Intolerance of ambiguity (Fibert & Ressler, 1998)
- Rule following and negative affect (Tomkins, 1965)
- Uncertainty avoidance (Wilson, 1973)
- Need for cognitive closure (Kemmelmeier, 1997)
- Personal need for structure (Altemeyer, 1998)
- Prevention-oriented regulatory focus (Liberman et al., 1999)
- Death anxiety (Jost, Napier, et al., 2007)
- Group-based dominance (Sidanius & Pratto, 1999)
- System justification tendencies (Jost, Nosek, & Gosling, 2008)

updated list from Jost, Glaser, Kruglanski, & Sulloway, 2003

Political Conservatism is associated with:

Motivated Social Cognition	Stronger epistemic, existential, and relational needs
Parenting Styles	Strict father (vs. nurturant parent) mentality
Moral Foundations	Ingroup, authority, and purity (vs. harm and fairness) moral concerns
Motivational Profile	Power and influence (vs. affiliation and social connectedness)

Brundidge et al. (2014); Meisenberg (2015); Tetlock (1983); Cichocka, Jost, et al. *(in press)*; Sylwester & Purver (2015); Neiman et al. (2016)

Research Question

- **Do liberals and conservatives communicate differently (in terms of linguistic style and word choice)?**
  - Which individual difference characteristics manifest themselves most prominently in the form of linguistic style and word choice?

Analyzing Twitter Language

Tweets

- **Sample:** 24,988 Twitter users
  - provide between 1 and 3,200 instances of language
- **Data:**
  - Document: all of the language each user sent on Twitter collapsed into a single document
  - Using each user's estimated political ideology to predict the number of words used in each language category of interest

Barberá (2015)

Language Measurement

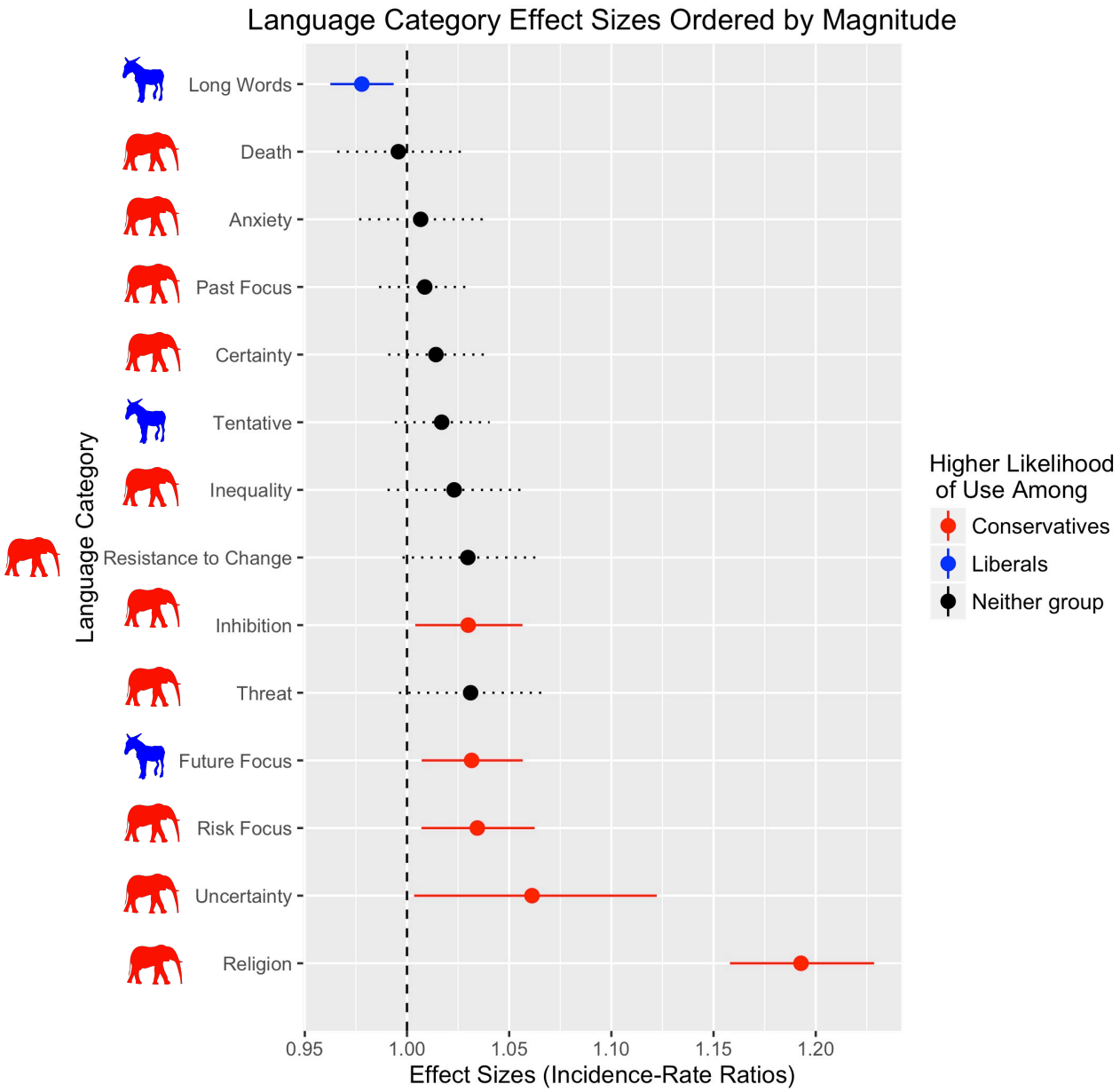
- **Dictionary-based methods:** Linguistic Inquiry and Word Count (LIWC; Pennebaker, Booth, Boyd, & Francis, 2015); Harvard IV dictionaries (General Inquirer; Stone, 1997); Neiman et al. (2016) dictionaries, Graham et al. (2009)

- We focus on 28 language predictions posited by previous work on ideology and word choice

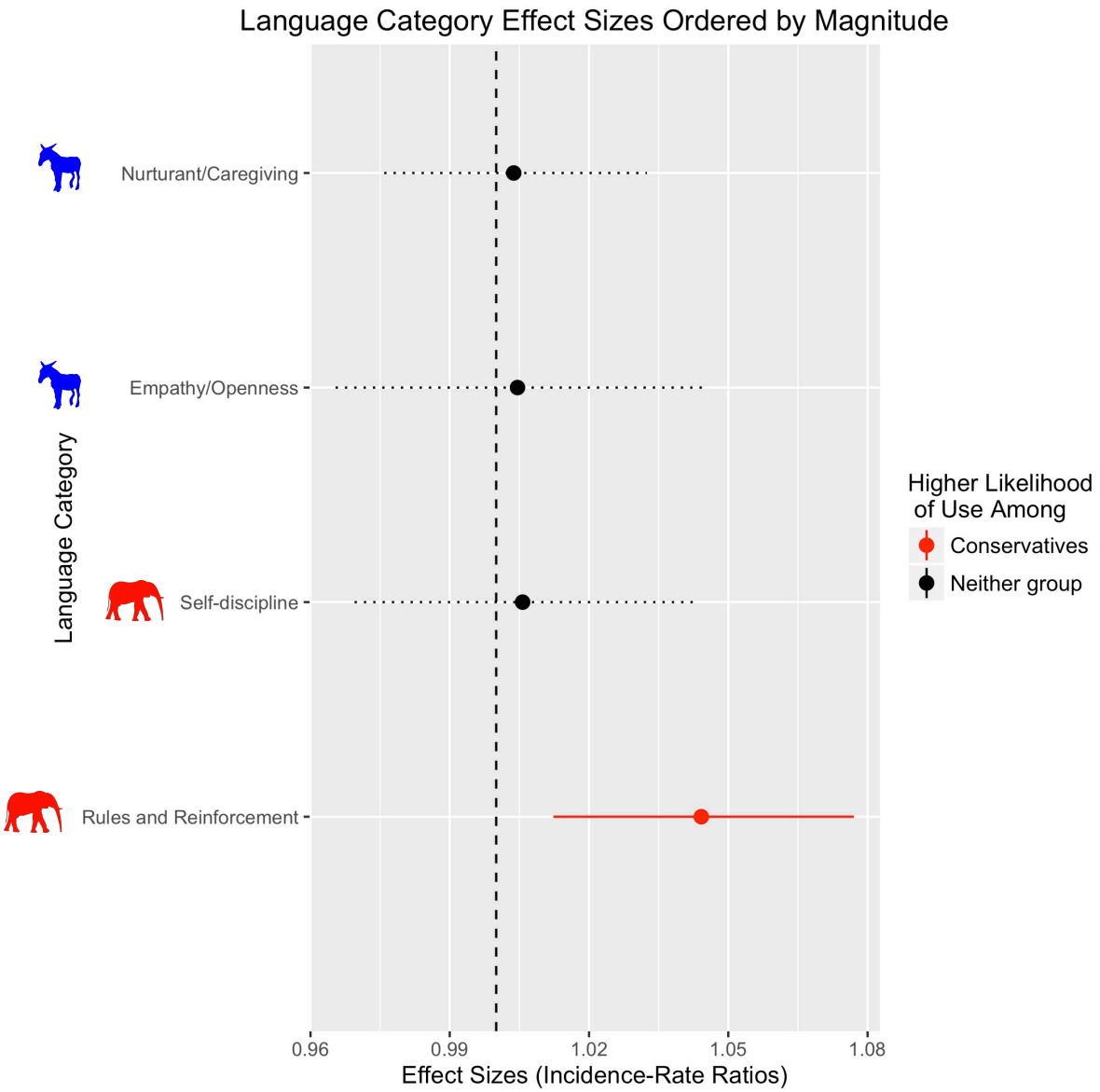
Language Predictions

	Conservative Language Indicators		Liberal Language Indicators	
Motivated Social Cognition	anxiety	religion	future focus	long words
	certainty	resistance to change	tentative	
	death	risk focus		
	inequality	threat		
	inhibition	uncertainty		
	past focus			
Parenting Styles	rules & reinforcement	self-discipline	empathy/ openness	nurturant/ caregiving
Moral Foundations Theory	authority	purity	fairness	harm
	ingroup			
Motivational Profile	power	money	affiliation	

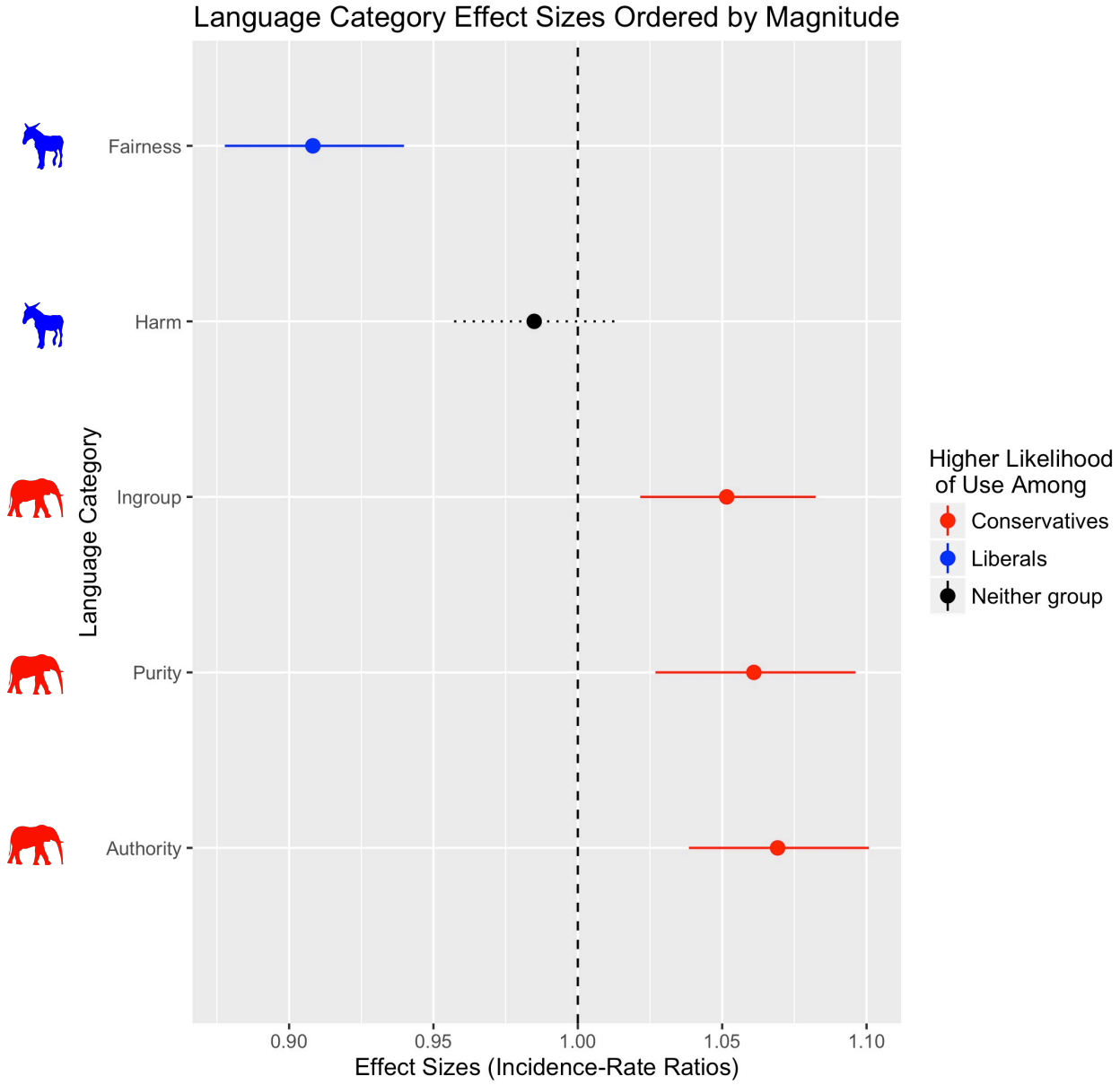
Motivated Social Cognition



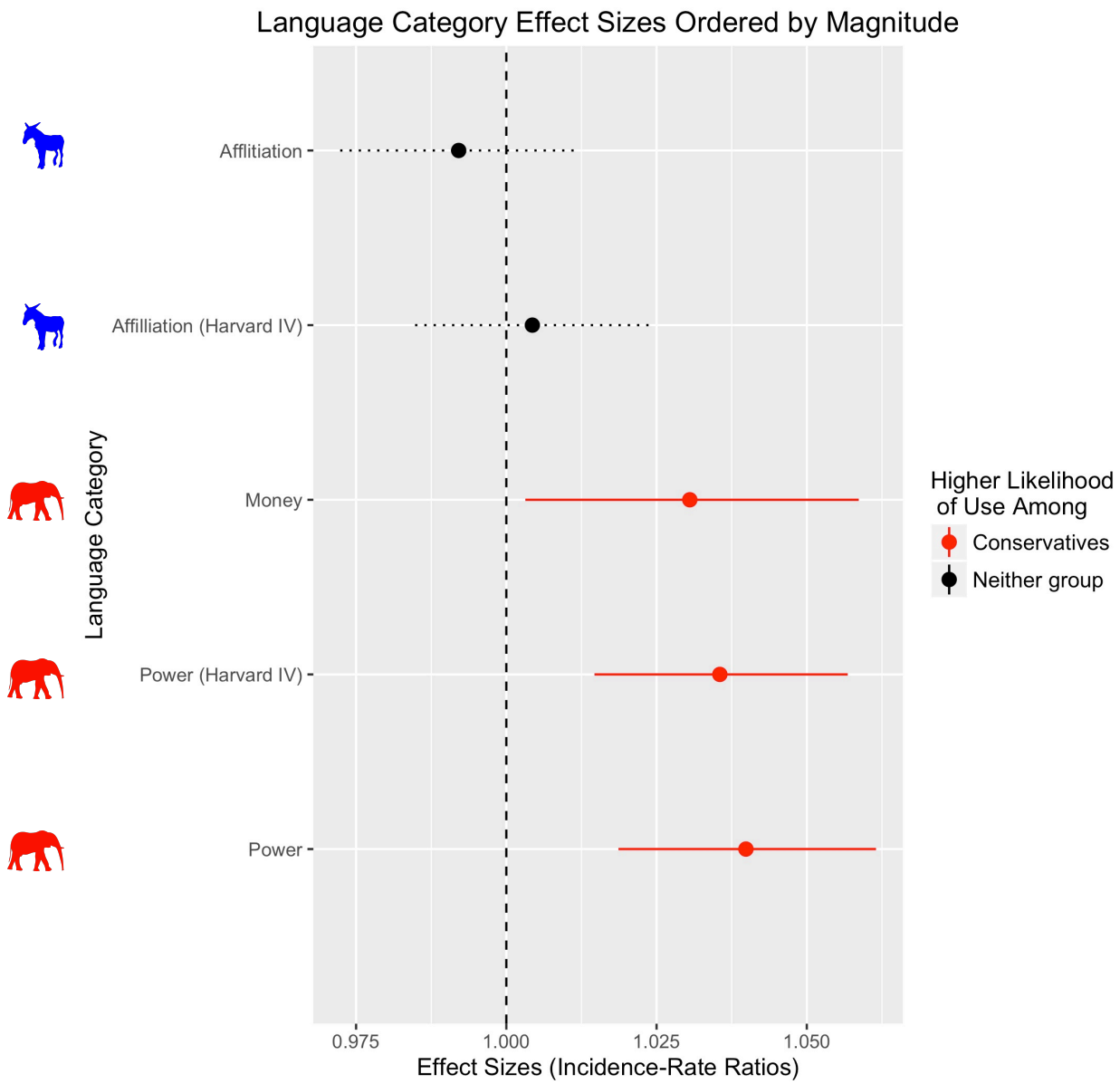
Parenting Styles



Moral Foundations



Motivational Profile



Discussion

- Political ideology reliably predicts the word choices of Twitter users for some aspects of language
- Conducted 28 tests of ideological effects on language
  - 14 / 28 had effect sizes which significantly differed from a null effect
  - 13 / 14 confirmed initial hypotheses
- Why for only these categories?

Mass Level Language Findings

	Conservative Language Indicators		Liberal Language Indicators	
Motivated Social Cognition	~~anxiety~~	religion	~~future focus~~	long words
	~~certainty~~	~~resistance to change~~	~~tentative~~	
	~~death~~	risk focus		
	~~inequality~~	~~threat~~		
	inhibition	uncertainty		
	~~past focus~~			
Parenting Styles	rules & reinforcement	~~self-discipline~~	~~empathy/ openness~~	~~nurturant/ caregiving~~
Moral Foundations Theory	authority	purity	fairness	~~harm~~
	ingroup			
Motivational Profile	power	money	~~affiliation~~	

Analyzing the Language of U.S. Legislators' Social Media Posts and Floor Speeches

The Language of Legislators

- Mass-level partisans often learn about political issues through political elites
- Most extant work is on mass-level partisans
- Methodological advantages:
  - Ease of collecting language from multiple sources
    - Better able to measure communicator, receiver, context effects
  - DW-Nominate scores directly comparable to Barberá ideology estimates

Multi-platform Approach

- **Sample:** 529 legislators
  - provide between 1 and 2,607 instances of language

- **Data:**
  - Twitter (88,874 instances of language)
  - Facebook (43,733 instances of language)
  - Congressional Floor speeches (9,184 instances of language)
    - Congressional Record

- **Time period:** February 9th-May 28th, 2014

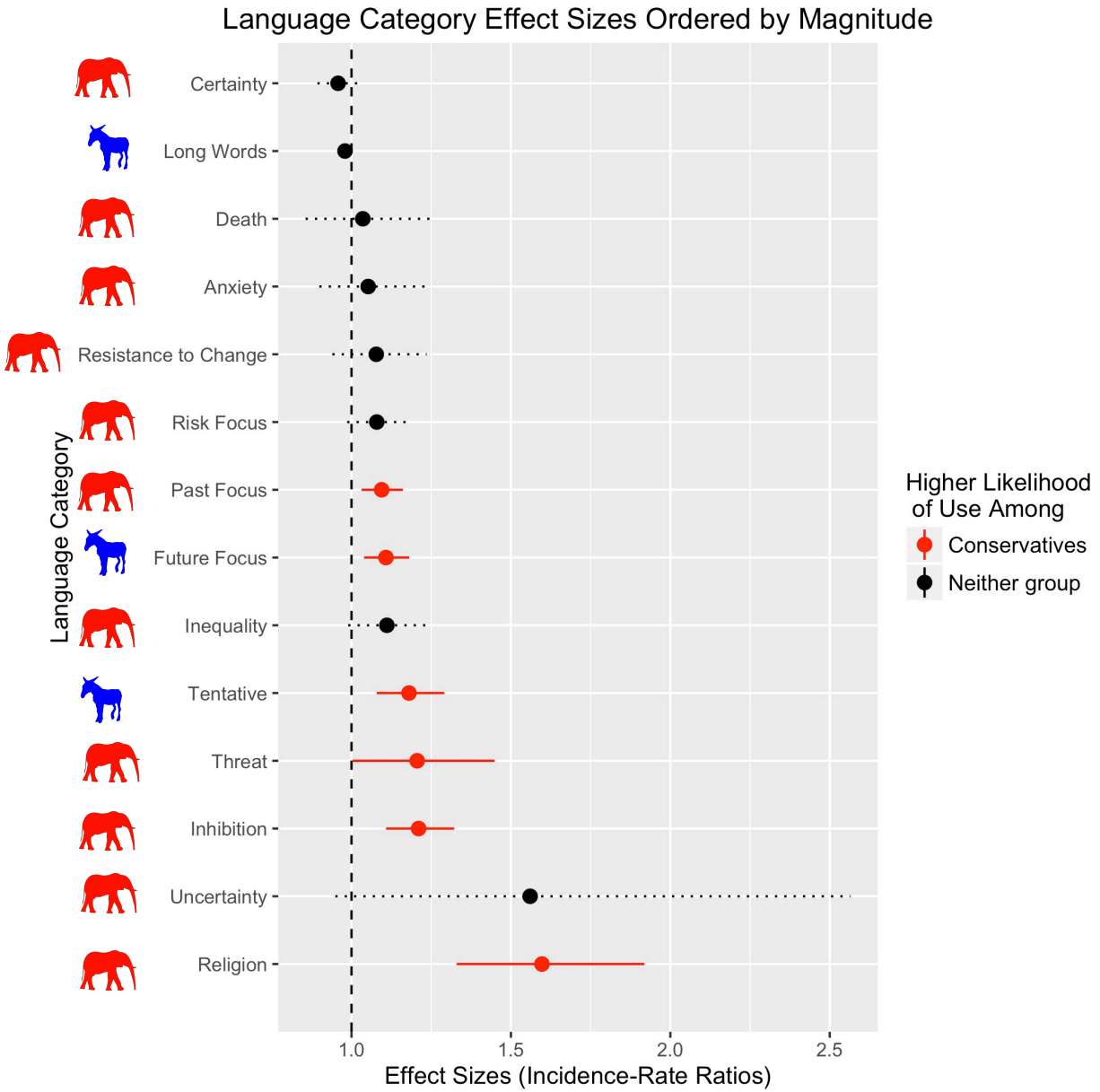
Research Question

- **Do liberals and conservatives communicate differently (in terms of linguistic style and word choice)?**
  - Which individual difference characteristics manifest themselves most prominently in the form of linguistic style and word choice?
  - Are these differences stable across communication context?

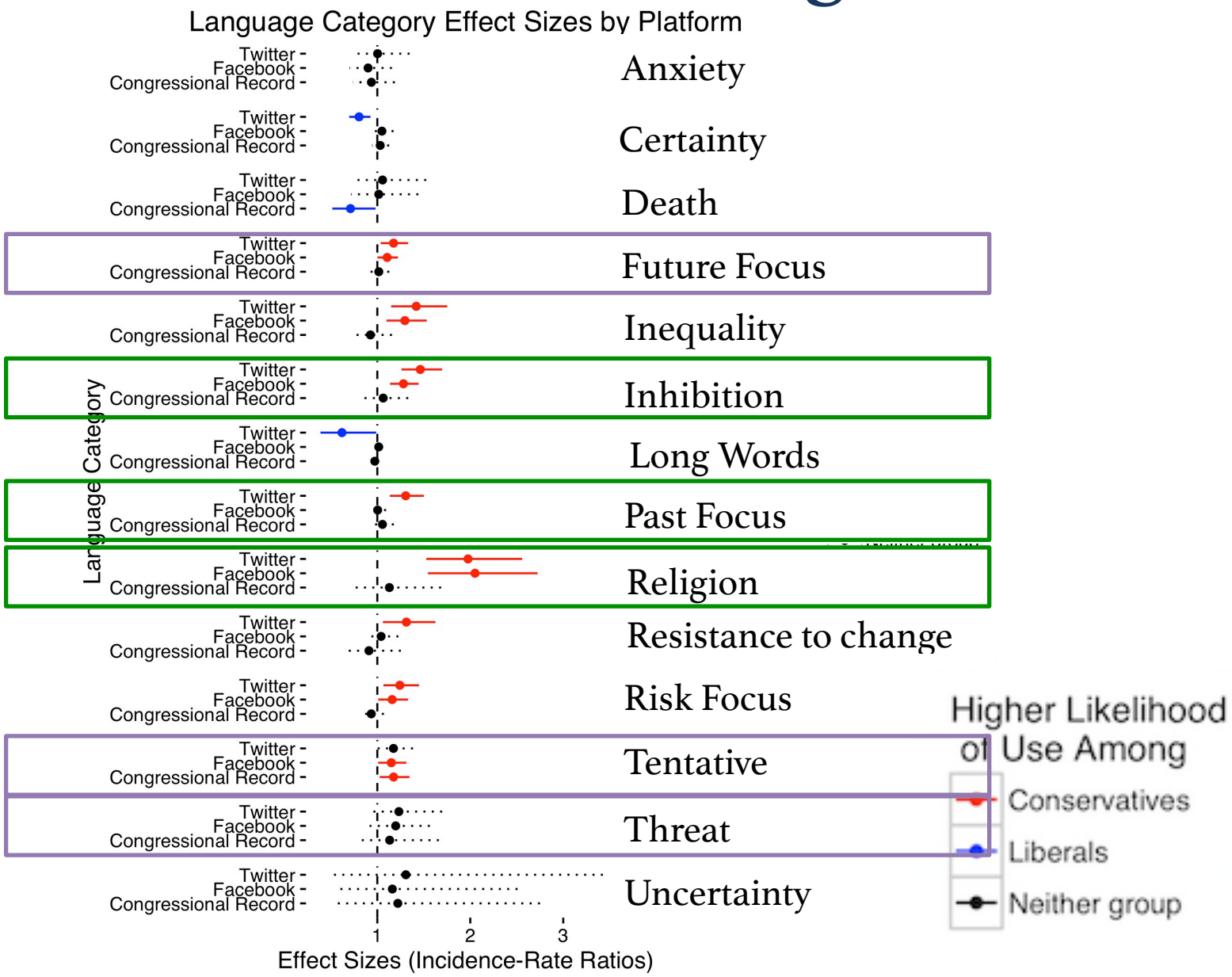
Model

- **Fixed Effects:**
  - *Level 1: message effects*
    - Word count
    - Platform
    - Platform * Ideology
    - Bill topics (defense, surveillance, immigration, gun control, welfare, budget)
  - *Level 2: person effects*
    - Ideology (DW-Nominate Score)
    - Sex
    - Age
    - Chamber
    - Chamber & Ideology

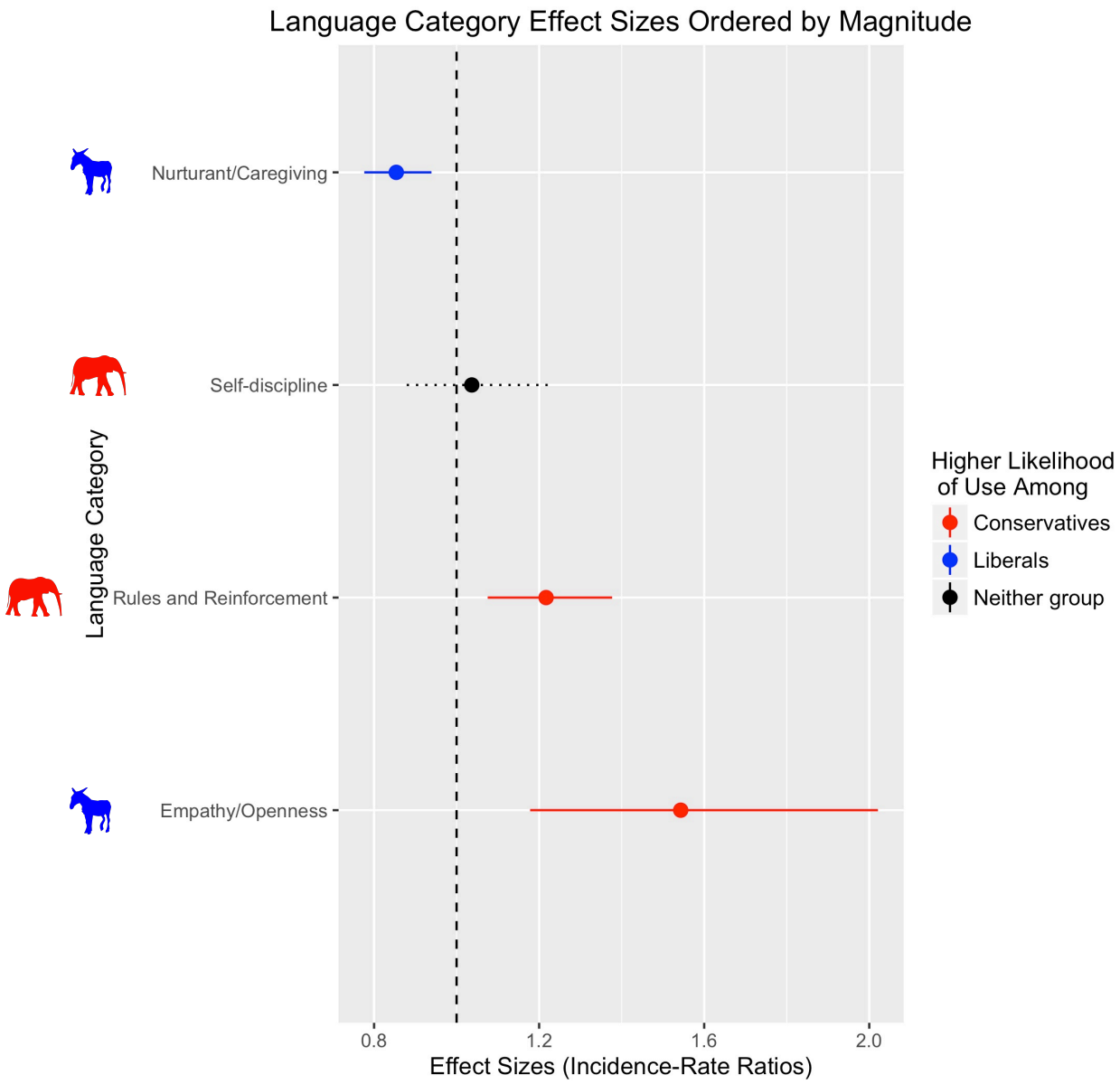
Motivated Social Cognition



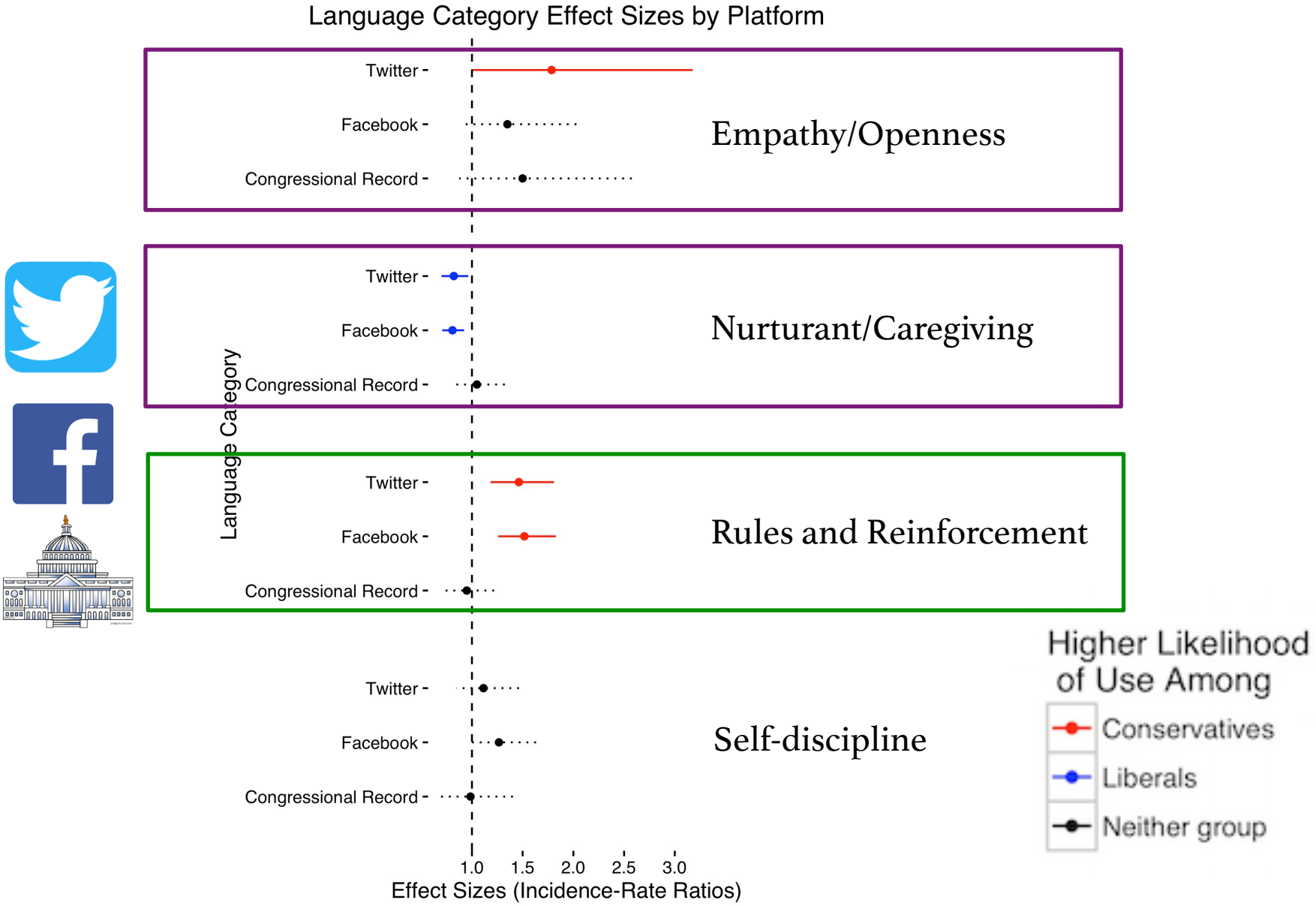
Motivated Social Cognition



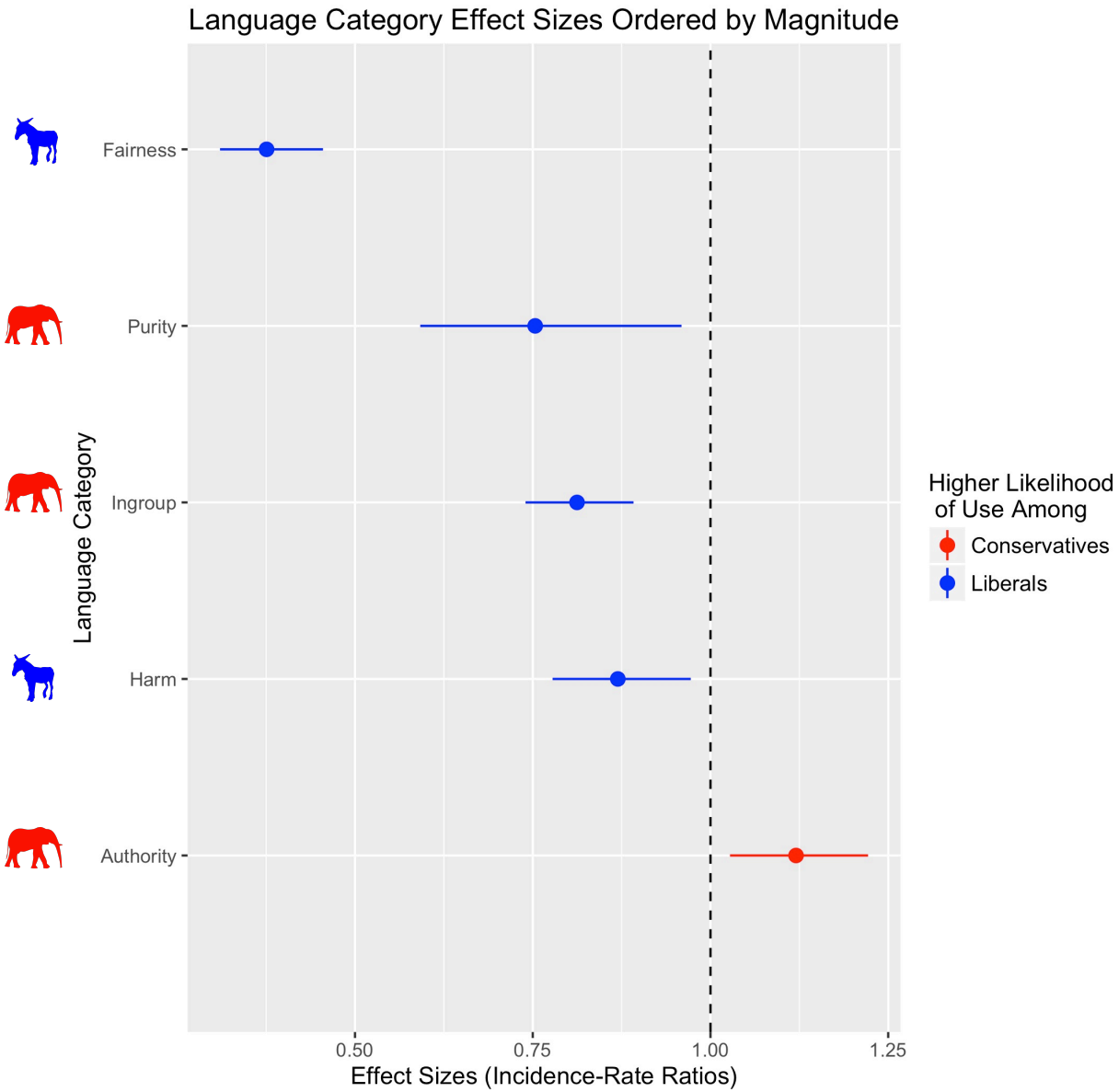
Parenting Styles



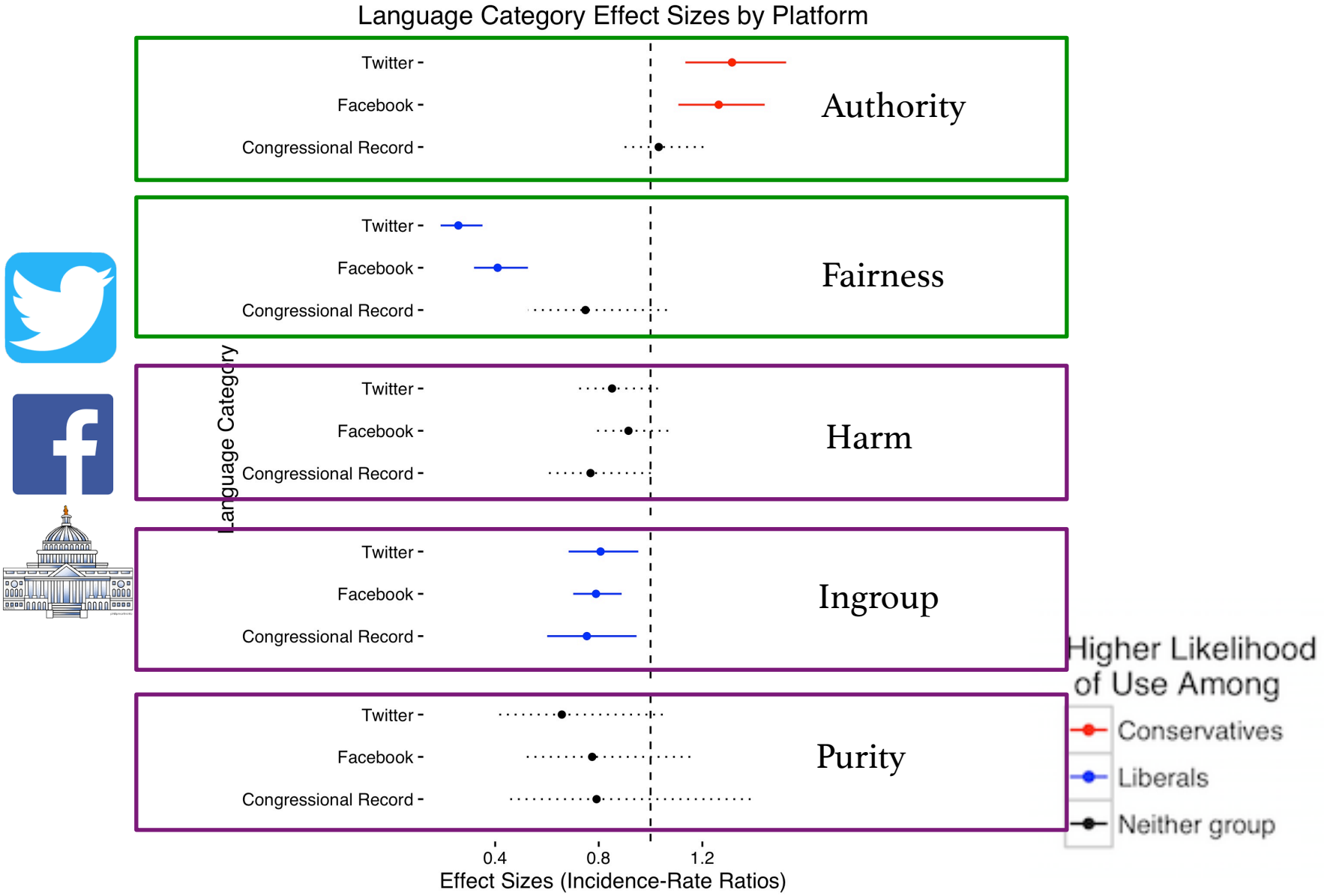
Parenting Styles



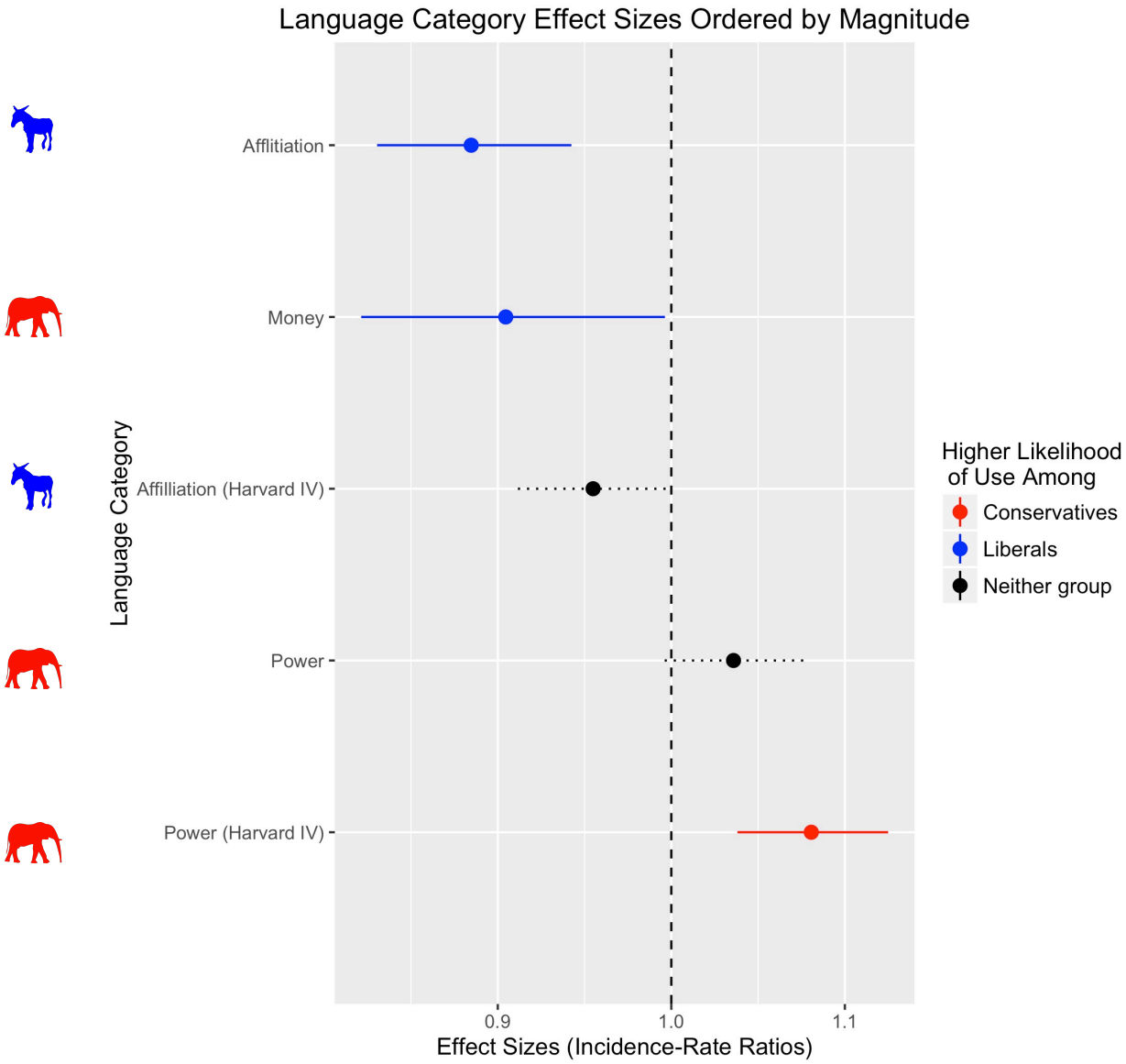
Moral Foundations



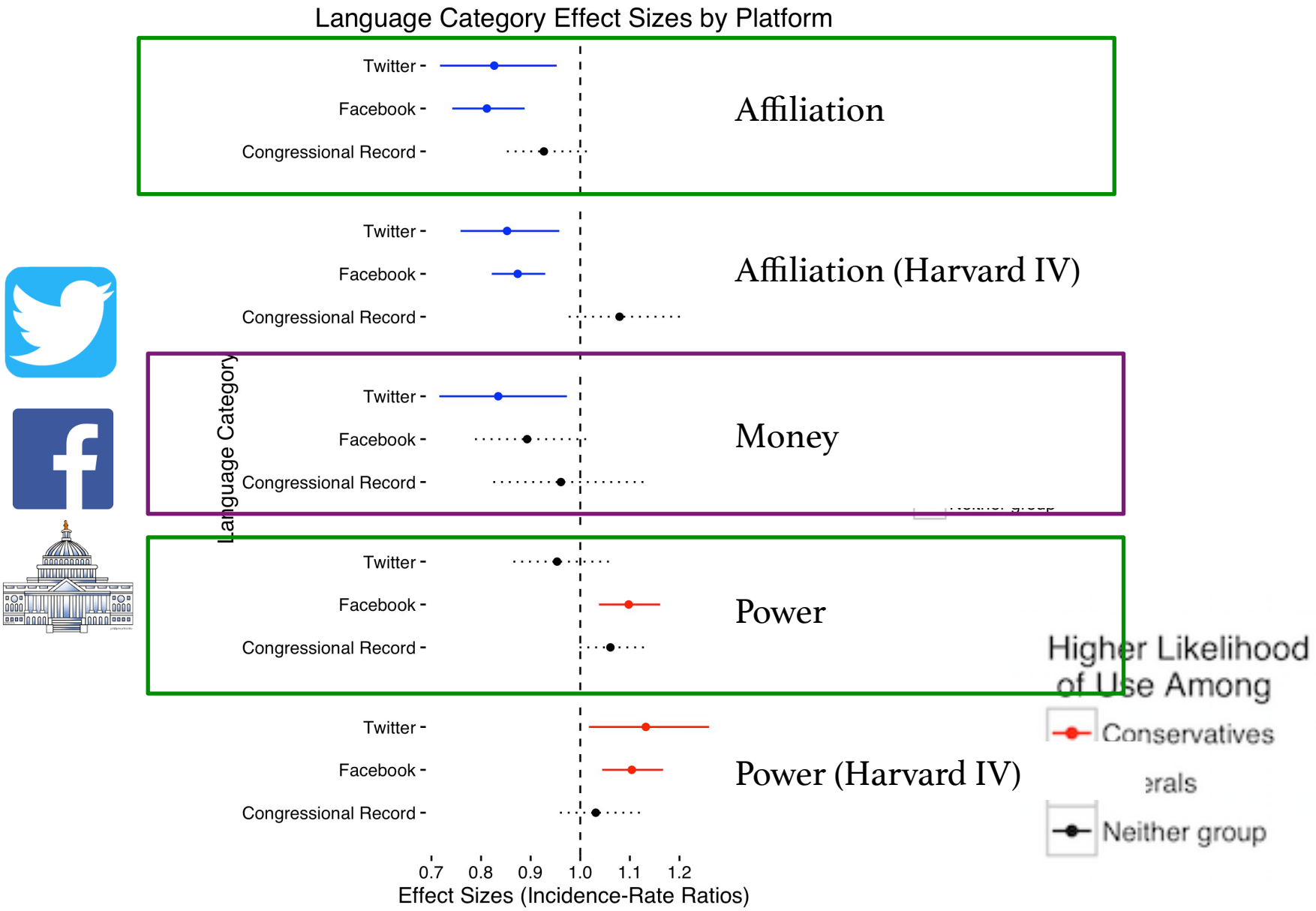
Moral Foundations



Motivational Profile



Motivational Profile



Discussion

- U.S. legislators use some words differently based on their political ideology
- Conducted 28 tests of ideological effects on language
  - 17 / 28 had effect sizes which significantly differed from a null effect
  - 12 / 17 confirmed initial hypotheses
- Significant variation across platform, but still some signal
  - Language patterns on Twitter and Facebook are mostly consistent
  - Weaker effects between ideology and language on the Congressional Record

Elite Language Findings

	Conservative Language Indicators		Liberal Language Indicators	
Motivated Social Cognition	~~anxiety~~	religion	~~future focus~~	~~long words~~
	~~certainty~~	~~resistance to change~~	~~tentative~~	
	~~death~~	~~risk focus~~		
	~~inequality~~	threat		
	inhibition	~~uncertainty~~		
	past focus			
Parenting Styles	rules & reinforcement	~~self-discipline~~	~~empathy/ openness~~	nurturant/ caregiving
Moral Foundations Theory	authority	~~purity~~	fairness	harm
	~~ingroup~~			
Motivational Profile	power	~~money~~	affiliation	

Mass and Elite Consistencies

	Conservative Language Indicators		Liberal Language Indicators	
Motivated Social Cognition	anxiety	religion	~~future focus~~	long words
	certainty	resistance to change	tentative	
	death	risk focus		
	inequality	threat		
	inhibition	uncertainty		
	past focus			
Parenting Styles	rules & reinforcement	self-discipline	empathy/ openness	nurturant/ caregiving
Moral Foundations Theory	authority	purity	fairness	harm
	ingroup			
Motivational Profile	power	money	affiliation	

Congressional Interviews

- Legislators have teams of communication specialists who write their posts for them with varying levels of direct supervision
- Conducted interviews with 37 Congressional offices so far
  - 23 reported that the Congress member had very little direct impact on what was posted on their behalf
  - Only 3 reported that the Congress member was the only person to post on their accounts

Remaining Questions

- Mixed evidence of psycholinguistic effects:
  - Dictionary-based methods do not reliably capture some of the psychological relationships established in previous research
- Inconsistencies among samples:
  - The relationships between psychological traits and ideology may operate differently for elites than they do for mass-level partisans
  - Or observed differences may be an artifact of differing language production processes

THANK YOU!